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ABSTRACT

Approximately 19,156 first term airmen (4,156 females and 15,000 males) were subjects of an Air Force study to determine if indicating three Air Force specialty (AFS) preferences, and subsequently being assigned to one of the job preferences selected, made any difference in job satisfaction. Three factors were analyzed: (1) reenlistment intent, (2) job interest, (3) felt utilization of talents and training. Each analysis was formulated within the general multiple linear regression approach and a series of five tables present analysis methods and data. Findings indicate that the job preference indication process had no effect on reenlistment intent while job interest and felt utilization of talents and training increased only when the first stated job preference was assigned. Recommendations state that should the job preference procedure be included in the newly developed automated post-enlistment classification system, it should be voluntary, with recruits given the option of stating only one or two preferences. Regression variables are listed in the appendix. (LH)

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AIR FORCE HUMAN RESOURCES LABORATORY

PREFERRED JOB ASSIGNMENT EFFECT ON JOB SATISFACTION

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RAYMOND E. CHRISTAL, Technical Director
Occupational and Manpower Research Division

Approved for publication.

HAROLD E. FISCHER, Colonel, USAF
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The current post-enlistment assignment process used by the Air Force permits recruits to indicate three job preferences. This report focused on this process of indicating a preference, and attempted to answer the question of whether indicating an Air Force specialty (AFS) preference and subsequently being assigned to the job preference selected, effected job satisfaction. Subjects were first term airmen (females = 4,156, males = 15,000) who had completed, during their first tour of duty, a job inventory which contained three items related to job satisfaction. A series of analyses were performed in order to see if the preference selection process was related to the three measures of job satisfaction. Results indicated that the preference selection process was related ($p < .01$) to two of the job satisfaction scales. The question of practical significance was raised and recommendations offered.

PREFACE

The authors would like to express their appreciation to Mr. William Alley for his review of this technical report and his constructive criticism which assisted in clarifying the presentation. In addition, the computer and statistical support provided by Mr. C.A. Greenway and Sgt P.M. Hutchinson, Computational Sciences Division, Air Force Human Resources Laboratory, were instrumental in accomplishing this research effort. Attitude information came from a data file developed by Mr. R.B. Gould under Work Unit 77340501, Impact of Work Related Factors on Job Satisfaction and Career Decisions.

This research was completed under Work Unit 20770401, Development of an Advanced Person-Job Match System for Air Force Enlistees for Use in the All-Volunteer Environment.

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PREFERRED JOB ASSIGNMENT EFFECT ON JOB SATISFACTION

I. INTRODUCTION

Presently, the Air Force is developing a computer based selection and classification system for personnel competing for enlistment into the Air Force. The automated system will replace the present manual system and will have a pre-enlistment selection and classification capability as well as a post-enlistment classification capability. The pre-enlistment selection and classification capability will permit assignment of a given person to a specific job (Air Force specialty) or to one of four aptitude areas (i.e., Mechanical, Administrative, General, or Electronic aptitude areas). In turn, the post-enlistment classification process will take those individuals assigned to an aptitude area, under the pre-enlistment assignment process, and assign each to a specific job within the respective aptitude area while the individual is undergoing basic training.

The current post-enlistment assignment process used by the Air Force permits recruits to indicate three job preferences. That is, they can record on a processing form which job is their first preference, their second preference, and their third preference, within certain constraints. The constraints are that an individual must be qualified for the job (i.e., meets the minimum aptitude requirements, physical requirements, and in some cases meets other unique requirements) and the job area must have an opening.

Implicit, in permitting an enlistee to state his job preferences, is the belief that this process will increase the individual's satisfaction with his assigned job if it is one he selected as a preference.

This report focuses on this process of indicating a preference, and attempts to answer the question of whether indicating an Air Force specialty (AFS) preference and subsequently being assigned to the job preference selected, makes any difference in terms of job satisfaction. Should this job preference indication process result in increased job satisfaction, then a case can be made that the automated post-enlistment classification system, presently under development, should also permit individuals to indicate their job preferences. On the other hand, if job satisfaction does not increase, for jobs stated as a preference, then this job preference indication procedure might possibly be deleted from the post-enlistment classification process.

II. METHOD

Subjects

The subjects used in this research effort were first term enlisted personnel drawn from a pool of approximately 49,475 individuals who had completed a job related inventory during the time period extending from September 1966 through November 1971. All female subjects (N=4,156) in this pool (and a random sample of 15,000 males) were selected for analysis purposes.

Procedure

The subjects had indicated, during basic military training, their preference for three different job types. Later, during their first enlistment tour they completed the job inventory cited above. The biographical section of this inventory included three job satisfaction related items, which served as criteria for this research effort. The three job satisfaction items asked the subjects about their: (a) re-enlistment intent (scale range 2–5), (b) job interest (scale range 1–7), and (c) felt utilization of talents and training (scale range 1–7).

A series of analyses were performed in order to determine whether subjects assigned to a preferred job are more satisfied than those not assigned to a preferred job. The hypotheses tested are listed in Table 1.

Each analysis was formulated within the general multiple linear regression approach described in Bottenberg and Ward (1963). This approach involves, for each hypothesis being tested, a comparison between a full model and a restricted model. A summary of these variables is provided in Table 2. For a detailed explanation of these variables refer to Appendix A.

The specific models developed for hypothesis testing are listed in Table 3. In Table 4, the models tested for each hypothesis are listed along with the F statistic for each of the three criteria. The sequence followed in testing the series of hypotheses is depicted in Figure 1. The first hypothesis tested was H_0. Since interaction was found to exist somewhere among the predictors two paths of exploration were followed. One path involved testing H_1 and the other path tested H_2. For H_1 if rejected then H_3 was tested, if H_1 accepted then H_4 was tested. On the other hand, for H_2 if it was rejected H_3 was tested while H_5 was tested when H_2 was accepted.

The end result by both paths, shown in Figure 1, was that for criterion 1 there was no significant differences between the four preference categories while there were significant differences between the four preference categories for criteria 2 and 3.

It might be noted that not only are there continuous or ordered variables included in the regression models, but also discrete or categorical variables. In order to be consistent and avoid possible confusion, the term ordered variable will be used during the remainder of this report to describe the aptitude variables (M, A, G, E), Armed Forces Qualification Test variable, and educational level variable. For variables of: preference, race, and sex the term categorical variable will be used.

III. RESULTS

For criterion 1, Re-enlistment Intent, the results indicated that there were no statistically significant differences between the four preference categories (i.e., H_3 and H_5 indicated no differences). This is also indicated by the raw score regression weights associated with the four preference levels which are given in Table 5.

For criterion 2, Job Interest, the results indicated that differences between the four preference categories were statistically significant (i.e., H_4: $p < .01$; H_5: $p < .01$). In addition, whatever differences that did exist were constant across all levels of all the other variables. This was reflected in H_2 and H_0 not being rejected. The raw score regression weights (Table 5) revealed that an individual's job interest was increased by approximately .187 units when assigned to a job he stated as his first preference, as opposed to being assigned to either his second or third preference, or being assigned to a job not stated as a preference.

Results obtained on criterion 3, Felt Utilization of Talents and Training, were basically the same as those found for criterion 2. That is, the results indicated significant differences (H_4: $p < .01$, H_5: $p < .01$) between the expected values associated with the four preference categories; assuming the differences were constant across all levels of all the other variables. The difference between the results associated with criterion 2 and criterion 3 was that for criterion 2 not only were differences constant across all the other variables (H_2 not being rejected), but also there was no significant interaction between preference and any of the other variables (i.e., H_0 was not rejected). For criterion 3, there was an indication of interaction between preference and one or more of the other variables. This was indicated by H_0 being rejected ($p < .01$).

As was the case for criterion 2, the increase in job satisfaction was limited to assignment to a stated first preference category. The raw score regression weights (Table 5) reveal that Felt Utilization of Talents and Training increased approximately .193 units when an individual was assigned to his stated first preference job, as opposed to any of the remaining job preference categories.

In order to put this increase in the proper frame of reference the means and standard deviations associated with the criteria have also been indicated in Table 5.

IV. CONCLUSION

Within the constraints imposed by the present post-enlistment assignment system, it appears that allowing recruits to state three job preferences and subsequently assigning them to stated job preference categories has no effect on Re-enlistment Intent within the first tour of duty. In the case of increased Job Interest and Felt Utilization of Talents and Training the increase due to stating a preference and being assigned to it is limited to one's stated first preference. Even though statistically significant the question of practical significance remains. This is especially true in light of the small increase in job satisfaction associated with the first preference category.

Should one only be interested in the criterion of job satisfaction, then it might be recommended that the job preference procedure be included in the future post-enlistment assignment process only if it could be accomplished without any additional processing time and cost. On the other hand, one might be interested in criteria other than those investigated here. If this be the case, then research associated with those criteria are required in order to assess the relationship of the job preference process to the criteria of interest.

Should the job preference procedure be included in the post-enlistment assignment process, then it is recommended that it be voluntary, and if recruits do desire to state their preferences, they also be given the option of stating only one or two preferences as opposed to being required to always state three.

REFERENCE

Bottenberg, R.A., & Ward, J.H., Jr. *Applied multiple linear regression.* PRL-TDR-63-6, AD-413 128. Lackland AFB, Tex.: 6570th Personnel Research Laboratory, Aerospace Medical Division, March 1963.

Table 1. Hypotheses Tested

Hypothesis	Subject
H_0	For each factor of preference, race, sex, and M, A, G, E, AFQT and Educational Level, the differences are constant across all levels of all of the remaining factors.
H_1	The differences for the expected values of the dependent variable for the categorical variables (i.e., sex, race, and preference) are constant across all levels of the ordered variables (i.e., Mechanical, Administrative, General, Electronic, AFQT Scores; and Educational Level).
H_2	Differences between preference levels are constant across all other variables. (Model assumes possible interaction between preference, sex, race, and M, A, G, E, AFQT, and Educational Level).
H_3	No difference between the four preference categories across all levels of sex, race, and M, A, G, E, AFQT scores, and Education (Model assumes H_1 rejected, indicating interaction effect).
H_4	Same as H_3 except that model assumes H_1 not rejected indicating no interaction effect.
H_5	No difference between preference levels. (Model does not assume interaction between preference levels and other variables. Model assumes H_2 true).

Table 2. Summary of Variables

Attribute	Variable Number
Criteria	1. Re-enlistment Intent 2. Job Interest 3. Felt Utilization of Talents and Training
Preference Selected; Individual was assigned to:	4. his first preference 5. his second preference 6. his third preference 7. a job not stated as a preference
Race	8. Black 9. Caucasian 10. Other
Sex	11. Male 12. Female
Aptitude Index (AI) and Educational Level	13. Mechanical AI 14. Administrative AI 15. General AI 16. Electronic AI 17. AFQT/AFWST AI 18. Educational Level
Sex by Race	19–24.
Sex by Race by 5 Aptitude/Education Levels	25–60.
Sex by Race by Preference	61–66, 103–108, 145–150, and 187–192.
Sex by Race by 5 Aptitude/Educational Level Categories by Preference	67–102, 109–144, 151–186, and 193–228.

Table 3. Regression Models

Model	Criteria	Number of Independent Predictors	Predictors
1.	1	168	61–228
2.	1	30	13–18, 61–66, 103–108 145–150, 187–192
3.	1	7	13–18 (Plus Unit Vector)
4.	1	42	19–60
5.	1	12	19–24, 13–18
6.	1	45	4–7, 19–60
7.	1	13	4–18
8.	2	168	61–228 (Same sequence as for models 1–7)
	.	.	
	.	.	
	.	.	
14.	2	13	4–18
15.	3	168	61–228 (Same sequence as for models 1–7)
	.	.	
	.	.	
	.	.	
21.	3	13	4–18

Table 4. Models Tested

Hypothesis	Full	Restricted	df_1	df_2	F Statistic for Criterion 1	2	3
H_0	1	7	155	18,988	1.27*	0.83	1.36**
H_1	1	2	138	18,988	1.25*	0.85	0.73
H_2	1	6	123	18,988	1.13	0.70	0.60
H_3	1	4	126	18,988	1.11	0.96	0.95
H_4	2	5	18	19,126	1.22	2.55**	3.29**
H_5	6	4	3	19,111	0.20	11.93**	15.68**

*$p < .05$.
**$p < .01$.

Table 5. Raw Scores Regression Weights, Means and Standard Deviations Associated with Criteria*

Variable	Criteria 1	2	3
4 – First Preference	–.011	.187	.193
5 – Second Preference	.000	–.016	–.050
6 – Third Preference	.013	.000	–.046
7 – Not a Preference	.000	.000	.000
Mean	2.821	4.660	3.458
Standard Deviation	.832	1.554	1.482

*Weights, Means and Standard Deviations rounded to 3 places.

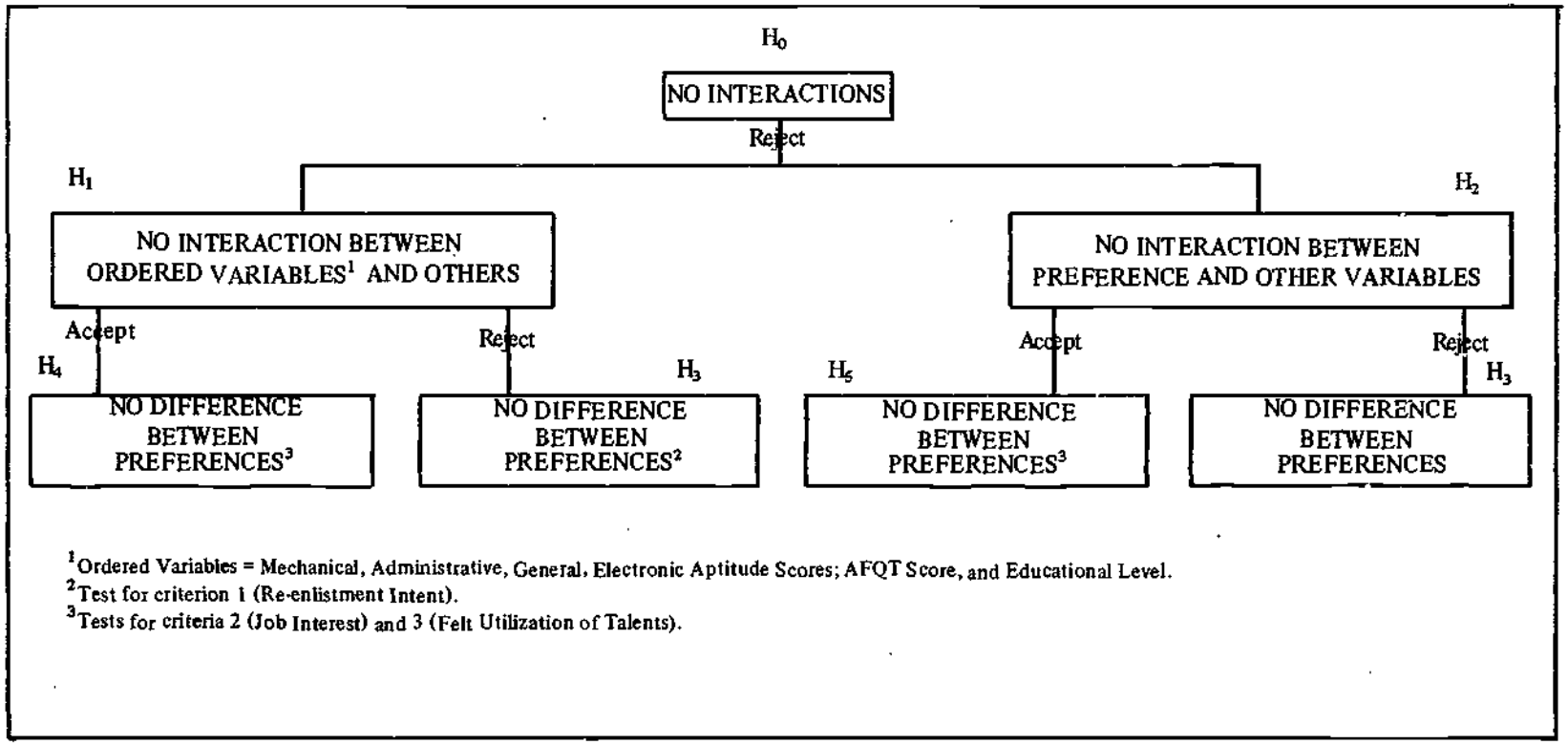

Figure 1. Hypotheses tested.

APPENDIX A. REGRESSION VARIABLES

Attribute	Variable Number and Description[1]
Criteria	1. Re-enlistment Intent 2. Job Interest 3. Felt Utilization of Talents and Training
Preference Selected	4. 1 if assigned to selected *First* preference, 0 otherwise 5. 1 if assigned to selected *Second* preference, 0 otherwise 6. 1 if assigned to selected *Third* preference, 0 otherwise 7. 1 if not assigned to either 1st, 2nd, or 3rd preference
Race	8. 1 if Black, 0 otherwise. 9. 1 if Caucasian, 0 otherwise 10. 1 if Other, 0 otherwise
Sex	11. 1 if Male, 0 otherwise 12. 1 if Female, 0 otherwise
Aptitude and Educational Level	13. Mechanical AI 14. Administrative AI 15. General AI 16. Electronic AI 17. AFQT/AFWST 18. Educational level
Sex by Race	19. V8 * V11 20. V8 * V12 21. V9 * V11 22. V9 * V12 23. V10 * V11 24. V10 * V12
Sex by Race by Aptitude–Education	25. V19 * V13 26. V19 * V14 27. V19 * V15 28. V19 * V16 29. V19 * V17 30. V19 * V18 31. V20 * V13 32. V20 * V14 33. V20 * V15 34. V20 * V16 35. V20 * V17 36. V20 * V18 37. V21 * V13 38. V21 * V14 39. V21 * V15 40. V21 * V16 41. V21 * V17 42. V21 * V18 43. V22 * V13 44. V22 * V14 45. V22 * V15 46; V22 * V16 47. V22 * V17 48. V22 * V18 49. V23 * V13

Appendix A *(Continued)*

Attribute	Variable Number and Description[1]
Sex by Race by Aptitude–Education	50. V23 * V14 51. V23 * V15 52. V23 * V16 53. V23 * V17 54. V23 * V18 55. V24 * V13 56. V24 * V14 57. V24 * V15 58. V24 * V16 59. V24 * V17 60. V24 * V18
Sex by Race by Preference (includes variables 61–66, 103–108, 145–150, and 187–192)	
Sex by Race by Aptitude/Education by Preference (includes variables 67–102, 109–144, 151–186, and 193–228).	**Preference 1** 61. V4 * V19 62. V4 * V20 . . 102. V4 * V60 **Preference 2** 103. V5 * V19 . . 144. V5 * V60 **Preference 3** 145. V6 * V19 . . 186. V6 * V60 **Preference 4** 187. V7 * V19 . . 228. V7 * V60

[1] Variables when repeated are coded. For example, the interaction of variable 8 with variable 11 would be coded as: V8 * V11.

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